UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
06/457,406	11/30/82	JOYNSON D	SDS 1965

KIRSCHSTEIN, KIRSCHSTEIN, OTTINGER
& ISRAEL
551 FIFTH AVENUE
28TH FLOOR
NEW YORK, N. Y. 10176

EXAMINER	
SOTOMAYOR, J	
ART UNIT	PAPER NUMBER
222	

DATE MAILED: 04/19/85

This is a communication from the examiner in charge of your application.

COMMISSIONER OF PATENTS AND TRADEMARKS

This document consists of 4 pages
No. 1 of 2 Copies

☒ This application has been examined ☐ Responsive to communication filed on _____ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 6 month(s), 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☒ Notice of References Cited by Examiner, PTO-892.
2. ☐ Notice re Patent Drawing, PTO-948.
3. ☐ Notice of Art Cited by Applicant, PTO-1449
4. ☐ Notice of informal Patent Application, Form PTO-152
5. ☐ Information on How to Effect Drawing Changes, PTO-1474
6. ☐ _____

Part II SUMMARY OF ACTION

1. ☒ Claims 1-16 are pending in the application.

   Of the above, claims _____ are withdrawn from consideration.

2. ☐ Claims _____ have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☒ Claims 1-16 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings which are acceptable for examination purposes until such time as allowable subject matter is indicated.
8. ☐ Allowable subject matter having been indicated, formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. These drawings are ☐ acceptable; ☐ not acceptable (see explanation).
10. ☐ The ☐ proposed drawing correction and/or the ☐ proposed additional or substitute sheet(s) of drawings, filed on _____. has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed _____, has been ☐ approved. ☐ disapproved (see explanation). However, the Patent and Trademark Office no longer makes drawing changes. It is now applicant's responsibility to ensure that the drawings are corrected. Corrections MUST be effected in accordance with the instructions set forth on the attached letter "INFORMATION ON HOW TO EFFECT DRAWING CHANGES", PTO-1474.
12. ☐ Acknowledgment is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

PTOL-326 (Rev. 7-82) EXAMINER'S ACTION

1. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention.

The claim language is indefinite at line 2 in that the tracking system includes either or both of a doppler tracking loop and an angle tracking loop.

2. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action.

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-16 are rejected under 35 U.S.C. 103 as being unpatentable over Gellekink in view of Broniwitz et al and Glass et al.

Gellekink discloses a monopulse radar tracking system including IF generating means, Doppler filter means, and error detector and generating means to generate an error signal for an associated tracking circuit. Gellekink provides range gates via the box-car

circuit means (15,25,26) followed by Doppler filters (16,27,28). Signal generator means 41 includes a VCO 46 and frequency control chain 42. VCO 46 adjusts to the target Doppler frequency signal.

Broniwitz et al discloses a tracking radar utilizing Kalman filter processing whereby gain factors are continually optimized having angle tracking and elocity (Doppler) tracking loops. Broniwitz et al disclose (column 2, lines 10-22) a typical tracking system positions range and velocity gates of the radar signal processor so as to keep the target centered within the gates and generates estimates of target position and motion. The Broniwitz et al system calculates filter gains and the filter is adaptable to the characteristics of the target signal. Broniwitz et al disclose (column 7, lines 43+) for ranging and for velocity two samples are taken, one on each side of the predicted peak of a pulse. Column 19, lines 7+ describe a "split-gate" tracker whereby range bins or doppler filters attempt to maintain the target centered between two filters.

Glass et al is cited to teach a radar tracker employing FFT means 66. It would have been obvious to one of ordinary skill in the art to have provided Applicant's claimed radar tracker modifying the

Gellekink tracker to incorporate a Kalman filter process as in Broniwitz et al. To have used a FFT process in a radar tracker would have been obvious in view of Glass et al.

Sotomayor/faq
(703) 557-5957

S. A. Cangialosi

SALVATORE CANGIALOSI
EXAMINER
GROUP ART UNIT 221